

# Microwave Processed Multifunctional Polymer Matrix Composites, Phase I

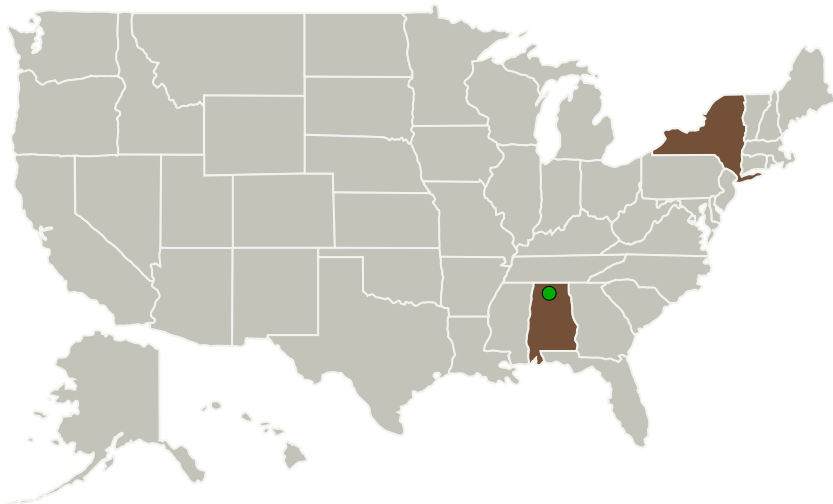
Completed Technology Project (2011 - 2011)



## Project Introduction

NASA has identified polymer matrix composites (PMCs) as a critical need for launch and in-space vehicles, but the significant costs of such materials limits their use. This proposal addresses the need for lower cost PMCs through the development of discontinuous fiber reinforced polymer composites with an in-situ grown carbon nanotube 3-D network that will translate to less expensive components with properties approaching those of continuous fiber reinforced polymers. The use of microwave processing will further reduce costs and improve the properties such that the Phase I and 2 efforts could lead to the implementation of these composites for a multitude of applications for which they are currently deemed too expensive. Ceralink will team with Florida International University, who will perform the in-situ growth of carbon nanotubes, and HITCO Carbon Composites, who will evaluate the developed materials and provide an assessment of technical and commercial viability. It is anticipated that a technology readiness level of 4 will be achieved by the end of the Phase I program.

## Primary U.S. Work Locations and Key Partners



Microwave Processed  
Multifunctional Polymer Matrix  
Composites, Phase I

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Organizations Performing Work	Role	Type	Location
Ceralink, Inc.	Lead Organization	Industry Women-Owned Small Business (WOSB)	Troy, New York
● Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama

## Primary U.S. Work Locations

Alabama	New York
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## Project Transitions

**February 2011:** Project Start**September 2011:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/138304>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Ceralink, Inc.

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

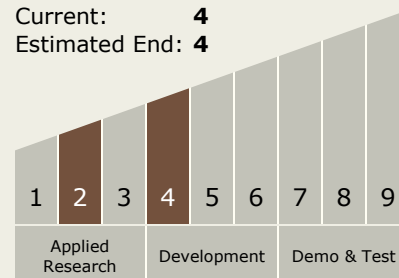
Shawn M Allan

## Technology Maturity (TRL)

Start: 2

Current: 4

Estimated End: 4



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## Technology Areas

### Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - └ TX12.2 Structures
    - └ TX12.2.5 Innovative, Multifunctional Concepts

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System